



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

**NPS FIELD EXPERIMENTATION PROGRAM FOR SPECIAL
OPERATIONS (FEP SO) TNT 13-1 REPORT**

by

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March 2013

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Prepared for: Naval Postgraduate School, Monterey, CA

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REPORT DOCUMENTATION PAGE				<i>Form Approved</i> OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 23-07-2013		2. REPORT TYPE Technical Report		3. DATES COVERED (From-To) October 2012-April 2013	
4. TITLE AND SUBTITLE NPS Field Experimentation Program for Special Operations (FEPSO) TNT 13-1 Report				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Dr. Raymond. R. Buettner, LtCol. Carl Oros, USMC (Ret.), Ramsey Meyer, Marianna Jones, Nelly Turley				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) AND ADDRESS(ES) Naval Postgraduate School, Monterey, CA 93943				8. PERFORMING ORGANIZATION REPORT NUMBER NPS-FX-13-001	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) Naval Postgraduate School, Monterey, CA 93943				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release: distribution unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT This analysis is broken up into two parts, event analysis and insights derived from the experiments themselves. The former includes recommendations regarding the nature of the event organization and the relationship of the sponsors. The later identifies recommendations associated with a technological domain (biometrics) that may need emphasis going forward and suggests attributes that may be associated with these areas. Appendixes provide: the Request for Information (RFI), list of experiments and schedule, experiment descriptions and after action reports. With the exception of the appendix, this document reflects the opinions of the author and does not represent the official policy or position of the Naval Postgraduate School, the United States Navy, or any other government organization. The data in the appendices were provided by the participants and have only been edited for clarity.					
15. SUBJECT TERMS Field Experimentation, Naval Postgraduate School and the United States Special Operations Command's (USSOCOM), Special Operations Research and Development Acquisition Center (SORDAC), Muscatatuck Urban Training Center (MUTC), multi-institutional semi-structured learning environment, After Action Report, biometrics.					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	18. NUMBER OF PAGES 29	19a. NAME OF RESPONSIBLE PERSON Carl Oros
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (831)656-3554

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

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The report entitled “*NPS Field Experimentation Program for Special Operations (FEPSO) TNT 13-1 Report*” was prepared for and funded by the Naval Postgraduate School.

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**NPS Field Experimentation Program for Special Operations (FEPSO)
TNT 13-1 Report**

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NPS Field Experimentation Program for Special Operations (FEPSO)

TNT 13-1 Report

March 2013

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I. Overview and Statistics

This analysis is broken up into two parts, event analysis and insights derived from the experiments themselves. The former includes recommendations regarding the nature of the event organization and the relationship of the sponsors. The later identifies recommendations associated with a technological domain (biometrics) that may need emphasis going forward and suggests attributes that may be associated with these areas. Appendixes provide: the Request for Information (RFI), list of experiments and schedule, experiment descriptions and after action reports. With the exception of the appendix, this document reflects the opinions of the author and does not represent the official policy or position of the Naval Postgraduate School, the United States Navy, or any other government organization. The data in the appendices were provided by the participants and have only been edited for clarity.

II. Event Analysis

The Naval Postgraduate School and the United States Special Operations Command's (USSOCOM) Special Operations Research and Development Acquisition Center (SORDAC) conducted the first of three FY 13 TNT events 30 October to 8 November 2012 at the Muscatatuck Urban Training Center (MUTC), IN and adjacent Jefferson Proving Grounds (JPG). NPS research associates LtCol Carl Oros USMC (Ret.), Mr. Ramsey Meyer, and Mrs. Marianna Jones were in attendance. The focus of the event was Urban Operations. The event had 209 participants representing 86 commercial organizations, 59 federal organizations, and 9 non-profit/academic organizations conducting 45 planned and 1 ad-hoc experiments.

The 13-1 event attendance is down markedly from FY-12 (Figure 1) attendance, which itself reflects a decreasing trend that correlates with, but is not necessarily caused by, an increase in structure and an increased emphasis on SORDAC PM/PEO priorities. By comparison, attendance across FY-11 (Figure 2) continued a three year long increase in both the numbers and diversity of attendees as the multi-institutional semi-structured learning environment construct was formalized and implemented.

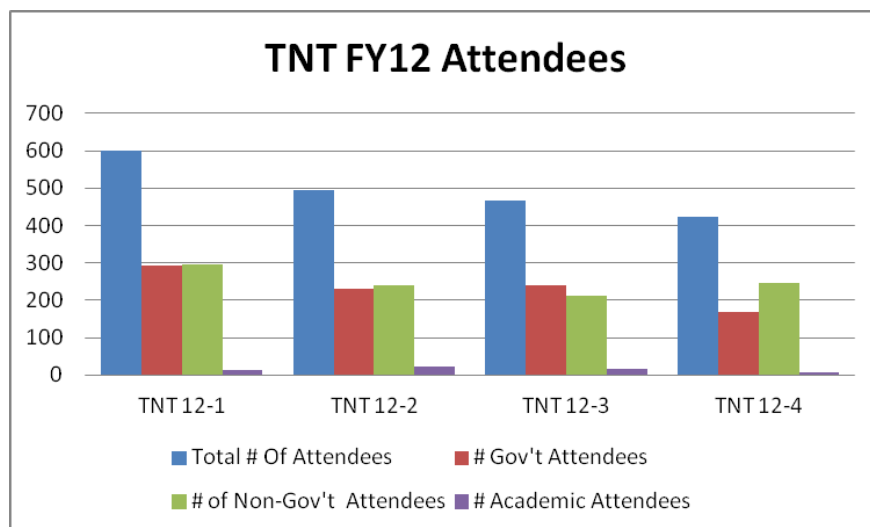


Figure 1: FY-12 Attendees

Also of note is that the 13-1 event was attended by only two component and one Theater Special Operations Command (TSOC) S&T representatives, possibly a reflection of the increased value of the event to SORDAC and SOCOM HQ leading to a reduced perception of value for the other members of the special operations community.

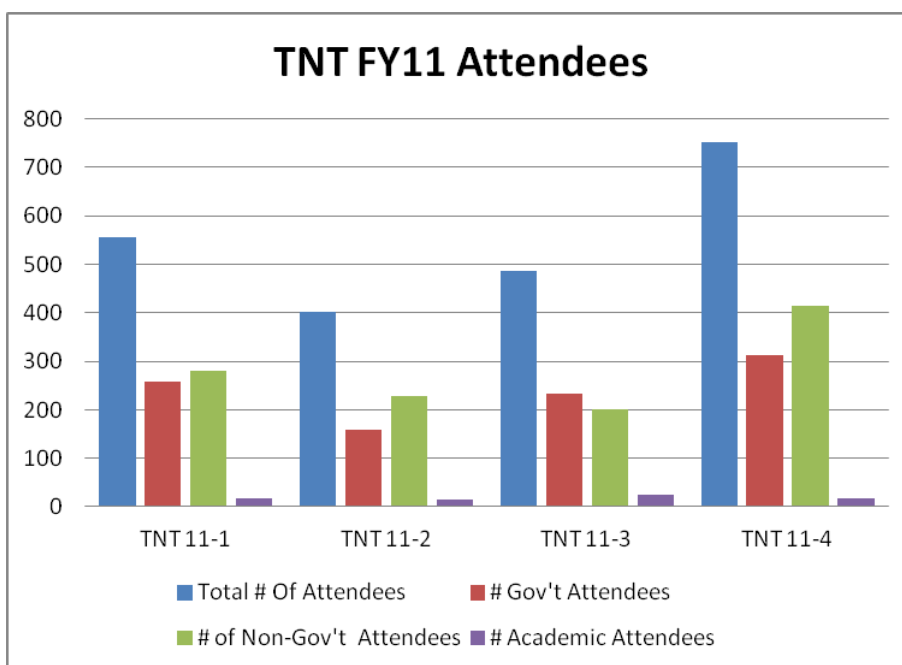


Figure 2: FY-11 Attendees

However, these trends may have other causes. The fiscal uncertainty associated with operating under continuing resolutions and the potential for sequestration have created plausible explanations for decreased travel early in the fiscal year. The lack of experience operating at the Muscatatuck UTC venue, and the isolation of the local venue from desirable accommodations, may easily have led to reduced participation as well. The weather for the



event included forecast for relatively cold temperatures and the potential for precipitation. Most significant, however, was the impact of Hurricane Sandy that struck the East Coast, coinciding with TNT 13-1. Several participants traveling from the east coast were forced to cancel their participation. This too had an impact on overall attendance. It should also be noted that the number of experiments submitted was not too far below the historical average and that in general industry participation was only slightly reduced. Somewhat paradoxically, the same fiscal uncertainties that may have reduced government participation in the 13-1 event may lead to increased submissions and industry participation as commercial entities; small companies in particular are driven to seek development assistance and access to sponsorship while budgets are tight. This same uncertainty may continue to reduce government participation and may eventually reduce the event's value to commercial participants, leading to the potential for the process to break down. However, that outcome is far from certain as this analysis lacks sufficient data to be predictive and thus is primarily informational in nature.

The 13-1 event also marked the beginning of a year that will feature the Special Operations Research Development and Acquisition Center (SORDAC) as the sole sponsor of TNT. Previously the events were conducted by a cooperative arrangement with funding augmented by contributions in kind (for example aircraft provided by their home units) and other funding sources (for example JIEDDO/OSD) with SOCOM ensuring that the Special Operations community writ large was served and the NPS maintained an emphasis on fostering a learning event not associated with the acquisition process. In effect this year will more narrowly focus on the USSOCOM HQ, more precisely the SORDAC PM/PEO view of needs, with SORDAC being both the sponsor and primary beneficiary of the event. Manifestations of the difference in event philosophies that have been observed include: referring to commercial participants as "vendors"; discontinuing the practice of providing a shared network space for participants and populating it with the experiment descriptions/report forms (one of SOCOM's previous innovations); no longer organizing the experiments by challenge area; and a strong shift away from the emphasis on the network that was a hallmark of the pre-SORDAC events. Again, this does not indicate that the changes are negative, so long as the event provides value as measured by SORDAC. These items are identified so that potential for adjustment exists if it becomes necessary or desirable to do so from the sponsor's perspective.

In order to organize and execute TNT events SORDAC has provided a dedicated SOCOM Experimentation Director with two support contractors as well as funding and/or requesting support from other entities such as the National Assessment Group, the Naval Surface Warfare Center (NSWC) Crane, and the US Army Special Operations Command's (USASOC) Technical Assessment Unit (TAU). SORDAC has duplicated and largely replaced the administrative processes previously executed on its behalf by the Naval Postgraduate School to include: creating and running websites for information and registration, processing RFI and white papers, running planning meetings, conducting ORM, etc. The posting of evaluations to the Joint Lessons Learned websites has replaced the large and unwieldy, and usually untimely, After Action Report.



As would be expected given the strong acquisition culture in SORDAC, the emphasis at each event is on process and value added to SOCOM's PMs/PEOs. This fact is well illustrated by SOCOM and SORDAC accounting for 1/7 of the total registered attendees. The increase in process emphasis was appropriate given that SORDAC, unlike the NPS, is an acquisition entity and needed to make sure that the events were conducted appropriately for this type of sponsor. SORDAC cannot directly fund and simultaneously direct a multi-institutional learning activity that has acquisition implications given its stated goal of engaging its own PMs/PEOs more fully in the process. This event was, and future events are likely to be, lower in institutional diversity. They are also likely to be more structured and less about community learning that may lead to revolutionary change. This is not "wrong". The more focused PM/PEO oriented events are—and the more focused related measures of effectiveness are—the more likely the events are to revolve around evolutionary improvements as reported/documented by its own participants. This is a perfectly reasonable outcome for SORDAC as the funding entity. Indeed, it would be inappropriate given the nature of the funding appropriated for SORDAC activities for this sponsor to support the learning centric aspects of the event that had been the key product of the NPS cooperative model.

By the end of the FY-12 the pace of operations for the SORDAC staff was given as the primary rationale to make a variety of changes to TNT: to decrease the frequency of events to three per fiscal year; to drop the MBE type activity; to eliminate two days of experimentation; and to conduct only one event at the NPS's McMillan Field facility at Camp Roberts. None of this is surprising since the increased formalization of the processes increased the workload of both the execution team and the more formal stakeholder's body that was engaged in the process.

The rate of one TNT event per quarter had been maintained since 2005 and was important to both the tangible and intangible qualities of the event. It both optimized availability for participation by USSOCOM officer students at NPS and drove the rate of innovation by commercial and academic participants to a much more "agile" development model. While not fundamentally opposed to the idea, SORDAC as an entity is not funded to maximize the potential for community learning and innovation or to support the education of SOF officers.

One recommendation that would seem to apply regardless of the cause of any change in event participation levels or process is the reduction of the event to 5-7 days vice two 5 day periods. The 10 day model makes it very difficult for government attendees to gain the same density of observations that they have previously enjoyed. It also increases event cost for all participants and creates two classes of engagement, one type for the "low week" and another for the "high week". There would seem to be little benefit to keeping the event at two weeks since this is an artifact of the deprecated MBE/CBE model that offers little value and dilutes the CBE aspects of the event.

SORDAC leadership has expressed satisfaction with the TNT events in various public forums. This should be expected since the purposes of the events more closely reflect their view of appropriate value added to their mission. Viewed from the perspective of the



funding sponsor this is both logically consistent and consonant with past statements of senior SORDAC leadership regarding the potential of the event to provide more value to their organization if modified.

As noted above NPS has identified areas to monitor as the experimentation process becomes more formalized. In the past the innovative value of the events was a result of the specialized learning environment (more specifically multi-institutional semi-structured learning environment). This construct is not intended to directly improve anything for the SOCOM HQ, and certainly was not narrowly aligned with the SORDAC organization objectives, except as they were part of the larger special operations community. These events did not (and in the new order do not) exist to produce a document or artifact except as required to report the conduct of the event. Rather the learning that takes place at the event is the primary product, with the “deliverable” being a vibrant learning environment for the community. This shift in focus from the community to the headquarters is fundamentally different. To some degree the HQ’s emphasis and redundant infrastructure created by SORDAC reduces the role of the NPS to that of a service provider. Again, this is not wrong. While historically providing a venue for NPS Special Operations students and supporting faculty to work with the special operations community was one of the primary objectives of the USSOCOM-NPS Field Experimentation Cooperative it is normal for the nature of the relationship to change over time. NPS and SORDAC should explore the subject of what is the appropriate role for an educational institution in the conduct of future events and whether or not the SOCOM HQ or SORDAC desire to, or have the means to, support the educational aspects associated with NPS participation in the events.

II. Noteworthy Technologies Observed

1. Rockwell Collins Cognitive Networked Electronic Warfare (CNEW)
2. Mega Wave MW3300 Fold-Up tactical DF Array

Rockwell Collins (RC), Mega Wave (MW) and CACI SystemWare’s¹ “Guardian” {*observed at NPS JIFX 12-4*} represent a low cost SIGINT trend to monitor, collect, and DF communications at the tactical level with portable, networkable equipment from ~ 30 MHz – 3 GHz (RC/MW) and up to 6/12 GHz (CACI). All of these products have unique GUIs and DF capabilities. They also vary in their RF algorithms, signature libraries, and network data distribution/visualization capabilities. What is missing from these approaches is a distributed network architecture vision that would allow multiple like systems to disseminate, share, and aggregate collected SIGINT information among multiple stakeholders in a format that is computationally ingestible and analyzable. It is unclear if any of these application even support Cursor on Target (CoT) C2 middleware.

3. General Atomics Rapid Urban Mission Planning with VBS2 and SPIMAP

¹ See <http://www.caci.com/caci-systemware/Guardian.shtml>



General Atomics (Rapid Urban Planning with VBS2 Virtualization and SPIMAP terrain Generation) demonstrated their software at TNT 13-1. Their mission planning suite consisted of two applications: (1) a SMARTPlanner and (2) SPIMAP (Swift Point Imagery for Mission Awareness Planning). SMARTP allowed the creation of 3D virtual battlespace-2 (VBS2)² simulation missions from 2D SMARTPlanner missions. The SPIMAP terrain generation allowed terrain to be generated from the latest imagery. This software demonstrated the ability to extract urban features out of 2D imagery and map data to generate a 3D model where users could insert mission objects (people, threats, etc.) into a battlespace simulation in order to dynamically rehearse actions on the objective and other mission profiles. Limiting the demo'd version was the inability to dynamically take in new imagery, process to the necessary format, and render in 3D. Only funding and development sponsorship have delayed productizing this type of capability. We discuss this technology trend along with Capturx/Adapx in our TNT 13-2 report.

4. Cloud Front Group (PixLogic + Flume (Saratoga Data Systems))

The Cloud Front Group combines and integrated package of technologies from PixLogic and Saratoga Data Systems capable of scanning captured video for “notions of interest” (NOI) (i.e. people, vehicles, aircraft, weapon installations, etc.) and then routing these NOI video segments to subscribed operators using Flume acceleration software. This allows the video clips to be transmitted over constrained, low bandwidth, intermittent networks.

5. Harris PRC-152A with ANW2 mesh network waveform.

This is the first TNT that Harris demonstrated the mesh capable PRC-152A with the adaptive networking wideband waveform (ANW2). We discuss the tactical wireless networking trends in our TNT 13-2 report.

III. High-level Tech. Trends and Analysis: Biometrics

Over the past several years a variety of technologies and capabilities have been explored relating to biometric identification. The ability to identify high value targets (HVTs) and potential threats in close contact, together with capabilities to identify key nodes within networks using, at least in part, biometric information has provided some real successes on and off the battlefield. Facial recognition, finger printing and DNA sampling are the predominant means for biometric identification. TNT continues to explore these biometric identification technologies with a recent emphasis being on systems that can perform facial recognition at longer distances.

There are indications that technologies based on single mode (face, DNA, finger print) of identification may have reached a plateau with regards to the cost for increased performance of these systems. After an earlier trend of going to nationwide biometric identification systems for internal (drivers licenses) and external (passports) identification

² See: <http://en.wikipedia.org/wiki/VBS2>

the trend has gone away from using such systems due primarily to an unacceptable number of failed identifications and false positives. This is not surprising since biometric systems are not isolated devices but rather combinations of sensors and data bases connected via a variety of socio-technical systems that are more complex and less malleable than the individual technologies thought of as biometric devices.

This trend away from national biometric systems may offer special operations a reprieve of sorts from the growing fear that the freedom of movement and relative anonymity of these forces across national boundaries, outside of actual combat operations, was in danger of being impaired by biometric identifications. While this may be true in the near term it is likely that the same types of technologies discussed below will eventually enable national systems to be deployed. The special operations community should use intelligence and policy (avoid travel through countries with robust biometric capabilities) to reduce exposure as long as possible while coordinating with USCYBERCOM and others to put in place capabilities to subvert these systems when they cannot be avoided.

This trend is a result of several challenges that still need to be addressed in order to support any revolutionary advancement that can be exploited by the special operations community. First there is still much to be learned about the individual distinctiveness of the human population. Second there needs to be a recognition of, and serious study of, the performance of large scale socio-technical systems such as biometric identification systems. Finally there needs to be recognition that outside of laboratory conditions the impact of diverse and complex physical environments will present real limitations to the ability of any one technology to provide stand-off range identification in a reliable fashion.

The impact of atmospheric conditions will continue to be a significant challenge for single mode biometric identification methods such as face recognition whether the sensor is high above the earth or a few hundred meters down the road. As every sniper knows near ground atmospheric conditions, from heat turbulence to airborne particulates must be taken into account when one attempts to target something on this dynamic planet that we live on. Most of the success to date in eliminating atmospheric distortion involves either known visual markers or active beaming to determine the degree of distortion and to allow for its correction. The special operations community might consider making a few good references available to vendors who claim to be able to accomplish single mode standoff identification and/or include in any requirement elements that identify the need to be effective even with conditions such as optical turbulence.

As mentioned above the social side of a biometric system, most predominately the organizational side, will remain a challenge and given the size and nature of US defense bureaucracies it is unlikely that the special operations community will be able to address the entire issue but to the degree that the problem set can remain “special” the community should be able to demand sufficient priority for its more limited requirements regarding high value targets and similar limited scale operations.

The most likely path towards revolutionary capability with regards to biometrics involves the use of multi-modal approaches. The ability to combine fingerprints with photographs (when distance is not a factor) is relatively commonplace and continues to expand. As with most other areas of electronic technology, the military (and government) are no longer leading the development in this arena but rather are seeing industry rapidly rolling out new uses. The familiar names of Apple and Google are both working towards



non-security applications of biometric identification and systems that relay and voice and lower quality images will become common in the market place.

However many new ways of combining personal characteristics are under way to include using the ear, DNA (rapid testing is already providing results in <60 minutes), gait, sweat, periocular, iris, heartbeat, sweat and odor (no this is NOT the same as sweat!) Visual technologies focused on the details of one's biology such as your ears, periocular region, iris, fingerprints and facial features all suffer from a need for proximity and have the same types of pros and cons one might expect.

Sweat detection is focused on determining that a subject is sweating. The ability to identify unusual changes in body temperature, such as might be exhibited by a terrorist afraid of detection (or detonation,) has been demonstrated at distances of 150 feet. Similarly systems designed to detect a heartbeat can potentially identify an unusually nervous person at significant distance, potentially up to several hundred yards. Gait identification has achieved success rates at several hundred yards of more than 90%. While current systems are visually based the potential to tap into the cell phone of a suspect and use the onboard accelerometers to identify the owner may offer a new way of thinking about gait based identification. This could be even more powerful in conjunction with voice data.

The path to increased effectiveness in the short term will come from layering these technologies. For example potential threats might be initially identified by gross detection systems such as the heartbeat or sweat detection technologies as potentially dangerous. These suspects could then be segregated to prepared areas for additional screening using more traditional methods.

Revolutionary improvements will come from being able to more rapidly collect and process multiple data sources with dynamic data bases. Ironically this suggest that rather than any new sensor breakthrough it will be the network that will be the most important single element in any dramatic improvements in the ability of special operations forces to exploit biometric technologies. This suggests that SORDAC S&T should emphasize the importance of any new technologies demonstrated being able to connect to, and share data in, a networked environment appropriate for the anticipated usage. This usage may vary greatly from conditions at a forward operating base, to a boarded vessel or the entry control point back at headquarters.

To remain engaged with the expected to be accelerating rate of change in the biometric field it is recommended that SORDAC S&T monitor the National Academies, DARPA, the Congressional Research Service, the National Science and Technology Council's Subcommittee on Biometrics and Identity Management, and of course the Biometric Identity Management Agency. However the most significant insight might best be obtained by monitoring technology blogs such as Wired's Danger Room and Gadgetlab, Techarta and Techtiplib. Online magazines such as IEEE Spectrum and the DataCenter Journal are also good sources of information. Finally, keeping a close eye on companies such as Google that see biometric information as another way to provide personalized services, and security as well, would be well advised.



APPENDIX A: TNT 13-1 Request for Information (RFI)

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Tactical Network Testbed (TNT) Collaboration Focus Area: Urban Operations at Muscatatuck UTC, IN

Solicitation Number: RFI-TNT-13-1_TNT-Experimentation

Agency: Other Defense Agencies

Office: U.S. Special Operations Command

Location: Headquarters Procurement Division

[Notice Details](#)[Packages](#)[Interested Vendors List](#) [Print](#)  [Link](#)

Note: There have been modifications to this notice. You are currently viewing the original synopsis. To view the most recent modification/amendment, [click here](#)

 [Complete View](#) **Original Synopsis**Aug 20, 2012
6:48 am **Changed**Aug 21, 2012
7:51 am[Return To Opportunities List](#)[Watch This Opportunity](#)[Add Me To Interested Vendors](#)**Solicitation Number:**

RFI-TNT-13-1_TNT-Experimentation

Notice Type:

Special Notice

Synopsis:

Added: Aug 20, 2012 6:48 am

A. INTRODUCTION: Tactical Network Testbed (TNT) Collaboration


This Request for Information (RFI) is NOT a solicitation for proposals, proposal abstracts, or quotations.

The purpose of this RFI is to solicit technology experimentation candidates from Research and Development (R&D) organizations, private industry, and academia for inclusion in future experimentation events coordinated by the U. S. Special Operations Command (USSOCOM) and the Naval Postgraduate School (NPS). USSOCOM invites industry, academia, individuals and Government labs to submit technology experimentation nominations addressing innovative technologies leading to possible Government/Industry collaboration for development of USSOCOM technology capabilities. The intent is to accelerate the delivery of innovative capabilities to the Special Operations Forces (SOF) warfighter. SOF experimentation will explore emerging technologies, technical applications, and their potential to provide solutions to future SOF capabilities.

SOF experimentation focus areas for FY13 triannual TNT events are as follows:

ALL FILES [Vendor Loan Agreement Sample](#)

Aug 20, 2012

 [Vendor Loan Agreeemen...](#)**GENERAL INFORMATION****Notice Type:**

Special Notice

Posted Date:

August 20, 2012

Response Date:

Sep 20, 2012 4:00 pm Eastern

Archiving Policy:

Automatic, 15 days after response date

Archive Date:

October 5, 2012

Original Set Aside:

N/A

Set Aside:

N/A

Classification Code:

A -- Research & Development

NAICS Code:

541 -- Professional, Scientific, and Technical Services/541712 -- Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)

- 30 Oct - 8 Nov 2012: Urban Operations at Muscatatuck UTC, IN
- 26 Feb - 7 Mar 2013: Digital Soldier at Avon Park, FL
- 18-27 Jun 2013: Signature Reduction at Camp Roberts, CA

Additional RFIs will be released to FedBizOpps approximately 75 days prior to each scheduled TNT event to provide additional details.

After review of the technology experimentation nomination submissions, the Government may invite select candidates to experiment their technologies at the USSOCOM & NPS sponsored TNT experimentation event. The TNT venue will provide an opportunity for the submitter to interact with USSOCOM personnel for the purpose of USSOCOM assessing potential impact of emerging technology solutions on USSOCOM missions and capabilities. The intent is to accelerate the delivery of innovative capabilities to the Special Operations Forces (SOF) warfighter. Industry participation in experimentation activities does not suggest or imply that USSOCOM or NPS will procure or purchase equipment.

B. OBJECTIVE:

1. Background: USSOCOM conducts TNT experimentation events at Muscatatuck UTC, IN; at Avon Park, FL, and in cooperation with NPS at Camp Roberts, CA. These cooperative TNT experiments are conducted with representatives from Government R&D organizations, academia, and private industry. TNT experimentation events provide an opportunity for technology developers to interact with operational personnel to determine how their technology development efforts and ideas may support or enhance SOF capability needs. The environment facilitates a collaborative working relationship between Government, academia, and industry to promote the identification and assessment of emerging and mature technologies for the primary goal of accelerating the delivery of technology discoveries to the SOF warfighter. The event facilitates SOCOM personnel to identify potential technology solutions, impacts, limitations, and utility to meet SOF technical objectives and thrust areas. Materiel solutions brought to the event should be at a Technology Readiness Level (TRL) of 3 or greater. Experiments may be between a half day and five days in duration and be conducted in unimproved expeditionary-like conditions. At the discretion of USSOCOM, respondents may be asked to complete a vendor loan agreement (see attachment).

2. Experimentation Focus: Experiments will be conducted from 30 Oct-08 Nov 2012, at Muscatatuck UTC, IN and will explore emerging technology solutions for Urban Operations (UO). Any technology-based experiment conducted at the event will need to be capable of supporting a SOF unit to provide a revolutionary improvement in SOF operations. Any and all solutions must provide all necessary software and hardware to accomplish the mission. Jointly executed UO include full spectrum operations-offensive, defensive, and stability or civil support-that may be executed, either

sequentially or simultaneously, during the conduct of a single urban operation, often with multilingual and interagency components. UO mission sets may include foreign internal defense (FID), unconventional warfare (UW), counterproliferation of weapons of mass destruction, special reconnaissance (SR), Direct Action (DA), counterterrorism, and information operations. Successful urban operations conducted by SOF require a thorough understanding of the urban environment, which may include:

- The psychological impact of intense, close combat against a well-trained, relentless, and adaptive enemy.
- The effects of noncombatants-including governmental and nongovernmental organizations and agencies-in close proximity to SOF.
- A complex intelligence environment requiring lower-echelon units to collect and forward essential information to higher echelons for rapid synthesis into timely and useable intelligence for all levels of command.
- The communications challenges imposed by the environment as well as the need to transmit large volumes of information and data.
- The medical and logistic problems associated with operations in an urban area including constant threat interdiction against lines of communications and sustainment bases.
- Stability and Civil Support Operations
- Close combat operations
- Fratricide avoidance
- Situational Awareness / Urban mapping
- Sniper and Countersniper Tactics Techniques and Procedures

An exploratory closed cyber (virtual) network infrastructure, and an Electromagnetic Environment (EME) using electronic spectrum recording can be provided based on expressed interest.

Please visit

<http://www.socom.mil/sordac/Directorates/ScienceTechnology/Pages/Localln> and follow the link to Muscatatuck UTC, IN to gain a better understanding of the uniqueness of Muscatatuck UTC and its capabilities.

3. Security Requirements: Vendors should not submit classified information in the technology experimentation nominations.

4. Respondents interested in conducting experiments using technologies like: lasers, explosives, weapons using live fire, moving equipment, vehicles, and other technologies that present an occupational hazard shall prepare and submit a safety risk assessment. The risk assessment shall address the likelihood and severity of any inherent risks as well as risk mitigation measures required to bring the resultant risk to a low level. The risk assessment shall be submitted as an attachment to the experiment nomination. Reference MIL-STD-882D for instructions and information regarding risk assessments. Also, respondents are responsible for ammunition shipments to include an Interim Hazard Classification and coordination for receipt and storage at Camp Atterbury.

5. Other Special Requirements: DO NOT SUBMIT PROPOSALS. SUBMIT TECHNOLOGY EXPERIMENTATION NOMINATIONS ONLY. EXPERIMENTATION NOMINATION SUBMITTALS FOR THIS RFI WILL ONLY BE ACCEPTED UNTIL THE CLOSING DATE OF 9/20/2012 1600 EST. No contracts will be awarded based solely on this announcement or any subsequent supplemental RFI announcements planned for FY13 TNT events.

C. SUBMISSION INSTRUCTIONS:

Technology Experimentation nominations shall be submitted electronically via USSOCOM webpage: <http://1.usa.gov/TNTExpNom>. Note: the URL is case sensitive. Multiple nominations addressing different technology experiments may be submitted by each respondent. Submissions will be reviewed by USSOCOM personnel to determine whether an experiment submission will be accepted for invitation. Each technology experiment nomination must address only one experiment.

Select respondents will be invited to participate in USSOCOM experiments. USSOCOM shall provide venues, supporting infrastructure, and assessment (operational and technical, based on availability of resources and written request) personnel at no cost to invited respondent(s). Respondent's travel costs and technology experiments will be at the respondent's expense. The TNT venue will only provide basic access to training areas or ranges to conduct experiments, a facility to connect to the internet, basic venue infrastructure including frequency allocation/deconfliction, and portable power if needed. Invited respondents must be prepared to be self-sufficient during the execution of their experiments and not dependent on venue resources for success.

D. BASIS FOR SELECTION TO PARTICIPATE:

Selection of respondents to participate will be based on the extent to which the technology represents a particular class or level of capability that can be provided to Special Operations Forces.

Other considerations include:

- Technical maturity
- Relevance of or adaptability to military operations/missions
- Relevance to current operational needs
- Relevance to Event Focus Area

E. ADDITIONAL INFORMATION: All efforts shall be made to protect proprietary information that is clearly marked in writing. Lessons learned by USSOCOM from these experiments may be broadly disseminated but only within the Government. If selected for participation in TNT experimentation, vendors may be requested to provide additional information that will be used in preparation for the experiments.

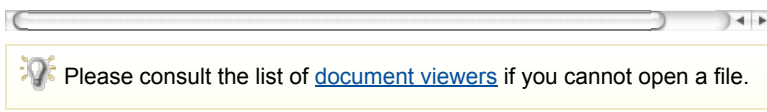
F. USE OF INFORMATION: The purpose of this notice is to gain information leading to Government/Industry collaboration for development of USSOCOM technology capabilities and to assist in accelerating the delivery of these capabilities to the warrior. All proprietary information contained in the response shall be separately marked. Any proprietary information contained in response to this request will be properly protected from any unauthorized disclosure. The Government will not use proprietary information submitted from any one firm to establish future capability and requirements.

G. SPECIAL NOTICE: Respondent's attention is directed to the fact that Federally Funded Research and Development Centers (FFRDCs) or contractor consultant/advisors to the Government will review and provide support during evaluation of submittals. When appropriate, non-Government advisors may be used to objectively review a particular functional area and provide comments and recommendations to the Government. All advisors shall comply with procurement Integrity Laws and shall sign non-disclosure and rules of conduct/conflict of interest statements. The Government shall take into consideration requirements for avoiding conflicts of interest and ensure advisors comply with safeguarding proprietary data. Submission in response to this RFI constitutes approval to release the submittal to Government support contractors.

H. Per Federal Acquisition Regulation (FAR) 52.215-3 Request for Information or Solicitation for Planning Purposes (Oct 1997):

1. The Government does not intend to award a contract on the basis of this RFI notice or to otherwise pay for the information.
2. Although "proposal" and "respondent" are used in this RFI, your responses will be treated as information only. It shall not be used as a proposal.
3. In accordance with FAR Clause 52.209(c), the purpose of this RFI is to solicit technology experimentation candidates from R&D organizations, private industry, and academia for inclusion in future experimentation events coordinated by USSOCOM.

Contracting Office Address:
7701 Tampa Point Blvd
MacDill AFB, Florida 33621-5323
Primary Point of Contact:
TECH_EXP@socom.mil



**Vendor Loan Agreement Sample****Type:** Other (Draft RFPs/RFIs, Responses to Questions, etc..)**Posted Date:** August 20, 2012[Vendor Loan Agreement.doc](#) (39.00 Kb)**Description:** Sample Vendor Loan Agreement for those selected to participate.**Contracting Office Address:**

7701 Tampa Point Blvd
MacDill AFB, Florida 33621-5323

Place of Performance:

See RFI

United States

Primary Point of Contact.:

TECH EXPO Database
TECH_EXP@socom.mil

Secondary Point of Contact:

Christine E Johnson,
Contractinf Officer
johnsc1@socom.mil
Phone: 813-826-6038
Fax: 813-826-7504

[Return To Opportunities List](#)[Watch This Opportunity](#)[Add Me To Interested Vendors](#)



APPENDIX B: TNT 13-1 Experiment List & Schedule

Experiment List for TNT 13-1 Muscatatuck, IN: 30 Oct – 9 Nov 12:

A. Intelligence, Surveillance, and Reconnaissance (ISR):

1. 3D Scene Reconstruction for Urban and Terrain from Full Motion Video – 2d3 Inc.
2. ~~Atmospheric Effects on Target Detection and Operations in Urban Areas – NPS – CANCELLED~~
3. Cobweb Force Protection and Area Denial System for Urban Operations – Becatch Inc.
4. Broadband, adaptable, fluorescence-based, portable, trace explosives detector – FLIR Systems
5. Demonstration of an enhanced Personal Inertial Navigation System Prototype – Honeywell International Inc.
6. Handheld Sense Through The Walls (STTW) - Raytheon
7. Hardware Implementation of Multi-Shot Optical Surveillance System (MuSOS) – Lentix, Inc.
8. Hyper Dynamic Range Optical Surveillance System (HyDROS) – Phelps2020, Inc
9. Image Acquisition and Exploitation Camera System (IAECS) – ACAGI, Inc.
10. MARK II Drop Kit – Cobham (RVision)
11. Modular Canine System – Tactical Electronics & ADS
12. Optical ID LIDAR – Arete Associates
13. Palantir Mobile – Palantir USG Inc.
14. Polarized Binoculars – ByField Optics
15. Rapid Deploy ISR System – Moog
16. Rapid Dissemination of High-Priority Video Segments – Cloud Front Group
17. ~~Rapid Field Deployable Area Mapping – Prioria Robotics – CANCELLED~~
18. Real-Time Atmospheric Parameters for Urban Operations – QinetiQ North America
19. Real-Time Threat Detection Utilizing Multi-Spectral Imaging – QinetiQ North America
20. Remote Aerial Platform/Tactical Reconnaissance (RAPTR) – Tactical Electronics & ADS
21. Shortwave Infrared Solider Systems – UTC Aerospace
22. Sniper Detection and Visualization – HGH Infrared Systems
23. ~~Squad Level Self Rescue Assisted by Micro-UAV Squad Level Self Rescue Assisted by Micro-UAV – Sandia National Laboratories – CANCELLED~~
24. Ultra-lightweight Synthetic Aperture Radar (SAR) –Artemis, Inc.
25. Ultrabright Long-Wave Infrared (LWIR) Quantum Emitter Beacons – Creative Microsystems Corp
26. Urban Reconnaissance with the SandFlea and RHex Robots – Boston Dynamics
27. PILARw, M2 OTM Vehicle Mounted Gunfire Detection System with Integration on Falconview – 01dB-Metravib

B. Command, Control, Communications, and Computers (C4):

1. Advanced Voice Response Translator (VRT) With Global Language Coverage For High-Noise Urban Operations – Integrated Wave Technologies, Inc.
2. Antennas for Urban Communications – MegaWave Corporation
3. Cognitive Networked Electronic Warfare (CNEW) Software system for communications countermeasures – Rockwell Collins, Inc.

4. Hand Held Rangefinder & Locator (DEMONEYE) – US Army ARDEC
5. Long Throw Planar Magnetic Speaker – Aardvark Integrated Systems
6. MIMO Enabled Mesh Network for video/data/voice in Harsh Urban Terrain – Silvus Technologies
7. Next-Generation Push-To-Talk and Messaging from Voxer – Voxer Federal LLC
8. Rapid Urban Mission Planning with VBS2 Virtualization and Fast Terrain Generation – General Atomics
9. T.R.U.E. Communications in an asymmetric environment – Harris Corp GCSD
10. WorldView – Indiana University/Global

C. Medical:

1. Human Performance Technology method to decrease team conflict and increase mission effectiveness – Wherewithal University Professional Solutions LLC
2. iCOT – MIS 2000-Global Defense Electronics-SAIC

D. Power and Energy:

1. A lightweight, Flexible, Rapid Man Portable Recharging Solution Even in Low Light for Rapid Field Deployment – Alta Devices
2. Atmospheric Water Generation/Water Generation from Air – Mistral Incorporated
3. Fuel Cell Power for Portable Power and TALON Robot – US Army TARDEC
4. Man Portable Power Generation Systems – UltraCell-LLC
5. Polaris RZR 900 w/ Auto-regulated Motion Power System – Polaris Defense
6. Q-Gen 2.0, 1kw, Single-Man Portable, Multi-Fuel Generator for Tactical Power – QinetiQ North America
7. Squad Power Manager – Protonex
8. TRINITY™ 2000 System – INI Power

E. Irregular Warfare (IW):

1. High Energy Liquid Explosive (HELIX) Cratering Charges – Ensign Bickford Aerospace & Defense
2. Raytheon Breaching Initiator System (RAYBIS) – Raytheon Technical Company (RTSC)

F. Cyberspace Operation (Attack, Defend, Exploit):

G. Weapons, Shelters, Barriers and Electronic Attack (EA):

1. Explosively Clad Bi-Metallic Rifle Barrels – TPL Inc.
2. Infrared Anatomy Targets – PWT3 Development
3. M8E1 Improved Stun Hand Grenade – Dept of Army
4. ~~Mini Claymore – Picatinny Arsenal – CANCELLED~~
5. Modular Breaching and Demolition System – Picatinny Arsenal
6. Remote Sniper/Counter Sniper Technology – Precision Remotes LLC
7. SORDAC-ST RAZAR DEMONSTRATION – Sandia National Laboratories
8. ~~Talon Precision Strike & Resupply System – Moog - CANCELLED~~
9. THINLITE High Hardened Transparent Armor – Dlubak Corporation
10. TNT 13-1 Viper-E Experiment (Viper-E Standoff PGM for Unmanned Aerial Systems (UAS) and Prop Aircraft In Urban Operations) –MBDA Missile Systems

H. Mobility:

1. Light Weight, Accurate Carbon Fiber Wrapped Rifle Barrels – Proof Research
2. Portable Three-Dimensional (3D) Driver Vision Enhancer (DVE) System Demonstration – Tactical 3rd Dimension Systems Corporation
3. Return Fire Glass/Light Weight Field Expedient Up-Armor Protection Kit/Off-road ballistic protected, blast resistant, high capacity personnel transport vehicle – Jabriel LLC/Armour Group
4. Special Mission Terrain Vehicle (SMTV) – Defense Technology Solutions, LLC

Lunch Briefs 12:00-1300:

Moog - Talon Precision Strike & Resupply System

LITE MACHINES - The Tiger Moth UAS is a hand or air launchable VTOL UAV weighing less than 5 lbs, and flying for 1-2 hours on rechargeable batteries. The vehicle has a very low acoustic signature, making it effectively silent from a distance of 50-100 ft. or more, depending upon ambient noise. The system is designed to be scalable and configurable, so interchangeable payloads are an option (other sensors, i.e. acoustic, chembio, etc. or lethal/nonlethal weapons payloads, etc.). It can be teleoperated and/or fly autonomously at high altitudes (10K+ ft. MSL) or a few inches above the ground (perch and stare capable), and fly in/out of windows, down hallways or stairwells, into caves and other GPS deprived environments.

NSW CRANE - Results of 2012 Urban Combat testing of how a Marine Corps Ring Mount Gunner (RMG) does their job and what senses are required to do their job. Where the current state of the art in EO/IR sensors, meets and does not meet the requirements to move the RMG from a standing exposed in the turret to monitoring sensors sitting down in the Vehicle Data was collected on the ring mount gunner as an individual system, as a system of systems within the organic vehicle, and between vehicles in offensive and defensive missions

30 Oct - 3 Nov

*** Due to the exploratory nature of the TNT event, this schedule is advisory in nature and is subject to change***

TNT 13-1 Schedule - Muscatatuck

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday					
29-Oct	30-Oct	31-Oct	1-Nov	2-Nov	3-Nov					
Morning Brief	7:30	7:30	7:30	7:30	7:30					
*****Experiments are ALL DAY events unless otherwise noted. Night Events are ALL DAY and continue into NIGHT*****										
Travel Day	D7	Protonex	D7	Protonex	D7	Protonex	D7	Protonex	G7	Sandia National Lab
	D2	Mistral Incorporated	D2	Mistral Incorporated	D2	Mistral Incorporated	D2	Mistral Incorporated	G6	Precision Remotes
	D6	QinetiQ	D6	QinetiQ	D6	QinetiQ	D6	QinetiQ		
	D8	INI Power	D8	INI Power	D8	INI Power	D8	INI Power		
	B10	Indiana University	B10	Indiana University	B10	Indiana University	B10	Indiana University		
	D3	US Army TARDEC	D3	US Army TARDEC	D3	US Army TARDEC	D3	US Army TARDEC		
	B9	Harris	B9	Harris	B9	Harris	B9	Harris		
	A3	Becatech	A3	Becatech	A3	Becatech	A3	Becatech		
	A16	Cloud Front Group	A16	Cloud Front Group	A16	Cloud Front Group	A16	Cloud Front Group		
	H4	Defense Technology Solutions	H4	Defense Technology Solutions	H4	Defense Technology Solutions	H4	Defense Technology Solutions		
	A26	Boston Dynamics	A26	Boston Dynamics	A26	Boston Dynamics	A26	Boston Dynamics		
	B4	ARDEC	B4	ARDEC	B4	ARDEC	B4	ARDEC		
	A4	FLIR Systems	A4	FLIR Systems	D4	UltraCell	D4	UltraCell		
	G3	Dept of Army	G3	Dept of Army	B1	Integrated Wave Tech	B1	Integrated Wave Tech		
	A19	QinetiQ	A19	QinetiQ	A5	Honeywell	A5	Honeywell		
	A9	ACAGI	A9	ACAGI Night Ops		LITE MACHINES 12:00-1:00		NSW CRANE 12:00-1:00		
	A15	Moog	A15	Moog Night Ops	A1	2d3	A1	2d3		
	A13	Palantir USG	A13	Palantir USG	B7	Voxer	B7	Voxer		
	A18	QinetiQ North America	B2	MegaWave	B2	MegaWave	B2	MegaWave		
			D1	Alta Devices	D1	Alta Devices	D1	Alta Devices		
			A23	Sandia National Lab	A23	Sandia National Lab	G7	Sandia National Lab		
			A20	Tactical Electronics	A20	Tactical Electronics	G6	Precision Remotes		
			A22	HGH	A22	HGH				
			A27	01dB-Metravib	A27	01dB-Metravib				
			G5	Picatinny	G8	Moog				
				MOOG 12:00-1:00	H3	Jabriel LLC				
Hot Wash			1700/Nite Ops/2200	1700	1700	1700	1700	1700		

Legend

TOC	JPG
403	JPG-Aircraft
Prison Complex	Atterbury
Hospital	ROC
Cave	Reservoir
Shantytown	

4-7 Nov

*** Due to the exploratory nature of the TNT event, this schedule is advisory in nature and is subject to change***

TNT 13-1 Schedule - Muscatatuck									
Sunday		Monday		Tuesday		Wednesday		Thursday	
4-Nov		5-Nov		6-Nov		7-Nov		8-Nov	
7:30		7:30		7:30		7:30		Morning Brief	
*****Experiments are ALL DAY events unless otherwise noted. Night Events are ALL DAY and continue into NIGHT*****									
		D7	Protonex	D7	Protonex	D7	Protonex	Travel Day	
		D2	Mistral Incorporated	D2	Mistral Incorporated	D2	Mistral Incorporated		
		D6	QinetiQ	D6	QinetiQ	D6	QinetiQ		
		D8	INI Power	D8	INI Power	D8	INI Power		
B3	Rockwell Collins	B3	Rockwell Collins	B3	Rockwell Collins	B3	Rockwell Collins		
		D5	Polaris	D5	Polaris	D5	Polaris		
		A14	ByField	A14	ByField	A14	ByField		
		A10	Cobham	A10	Cobham	A10	Cobham		
		B8	General Atomics	B8	General Atomics	B8	General Atomics		
		C2	MIS 2000	C2	MIS 2000	C2	MIS 2000		
		A16	Cloud Front Group	A16	Cloud Front Group	A16	Cloud Front Group		
		B6	Silvus Technologies	B6	Silvus Technologies	B6	Silvus Technologies		
		A26	Boston Dynamics	A26	Boston Dynamics	A26	Boston Dynamics		
		C1	Wherewithal	C1	Wherewithal	C1	Wherewithal		
		A6	Raytheon	A6	Raytheon	A6	Raytheon		
		B5	Aardvark	B5	Aardvark	B5	Aardvark		
		A11	Tactical Electronics	A11	Tactical Electronics	A11	Tactical Electronics		
		A25	Creative Micro	A25	Creative Micro Night Ops				
		H2	T3D	H2	T3D Night Ops				
		A17	Priora Robotics	A17	Priora Robotics				
		A24	Artemis	A24	Artemis				
		A12	Arete Associates	A12	Arete Associates				
		G1	TPL	E1	Ensign Bickford				
		G9	Dlubak Corp	G9	Dlubak Corp				
		H1	Proof Research	H1	Proof Research				
		G2	PWT3	G10	MBDA				
		G4	Picatinny	A21	UTC Aerospace Night Ops				
		E2	Raytheon (RTSC)	A8	Phelps 2020				
				A7	Lentix				
Hot Wash 1700		1700		1700/Nite Ops/2200		11:00			

Legend	
TOC	
403	
Prison Complex	
Hospital	
Cave	
Shantytown	
JPG	
JPG-Aircraft	
Atterbury	
ROC	
Reservoir	

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